

REFERENCES

- NAIK, R. M. & ANDREWS, M. I. (1966): Pterylosis, Age Determination, and Molt in the Jungle Babbler. *Pavo* 4(1 & 2):22-47.
- NEWTON, I. (1966): The Molt of the Bullfinch *Pyrrhula pyrrhula*. *Ibis* 108:41-67.

13. OCCURRENCE OF THE PURPLE COCHOA *COCHOA PURPUREA* HODGSON, NEAR MUSSOORIE, U.P.

During a recent collection trip to Mussoorie, we obtained a specimen of a male Purple Cochoa (*Cochoa purpurea* Hodgson) at Dhanaulty, c. 2318 m, approximately 21 km east of Mussoorie on 9th July 1974. According to Blanford & Oates (1890, FAUNA OF BRITISH INDIA 2) and Sálím Ali & Ripley (1973, HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN 8) the western-most limit of this species is Almora/Nainital, but Baker (1924, FAUNA OF BRITISH INDIA 2) includes Simla within its range (approximately 114 km northwest of Mussoorie).

This specimen was one of a pair seen along with Greywinged Blackbirds [*Turdus boulboul* (Latham)], in dense undergrowth at the edge of a vast clearing on a hillside slope. Though a considerable area around the spot is cleared to bring under potato cultivation, the thick vegetation along the ravines on the lower slopes might provide this bird enough cover to breed in this area. This rare and shy bird skulks in dense patches and is seldom seen. Ripley (1950, *J. Bombay nat. Hist. Soc.* 49: 386) presumably saw it in Bhimphedi, Nepal, where later Biswas (1961, *ibid.* 58:665) collected a single male. Smythies (1950, *ibid.* 40:515) mentions of a record of this species at Sheopuri, Nepal. The present specimen is the second in the Society's collection, the first was obtained by Dr. Sálím Ali at Gedu, c. 2000 m central Bhutan on 15th October 1968.

BOMBAY NATURAL HISTORY SOCIETY,
HORNBILL HOUSE,
BOMBAY 400 023.

S. A. HUSSAIN

DEPT. SYSTEMATICS AND ECOLOGY,
UNIVERSITY OF KANSAS,
LAWRENCE, KANSAS 66044, U.S.A.,
September 29, 1974.

ROBERT C. WALTNER

14. SOME SYSTEMATIC NOTES ON THE YELLOW-BREASTED TIT (*PARUS FLAVIPECTUS*)

1. *On the Azure Tit in Chitral*

In July, 1902, H. T. Fulton collected five Azure Tits "in the dense scrub of stunted willow, juniper and birch" in a river bed at an altitude

of about 3000 m at Shost in Chitral. Though his note (1904, *antea 16*) suggests that the tits were rather numerous then there is no later record of an Azure Tit in Chitral or elsewhere in Pakistan or India. Possibly, Fulton merely had met with an occasional wandering flock from the Pamirs or Afghanistan but more probably the tit bred (or still breeds) in the montane forests of Chitral.

Fulton who compared the birds with European *P. caeruleus* but not with *P. (cyanus) flavipectus* from neighbouring Turkestan concluded they were *P. cyanus tianschanicus* Menzbier. At that time, the distribution of the azure tit forms was only rather poorly known. Actually, the western limit of *tianschanicus* runs from the mountains west of Lake Issyk-kul (Kirghiz Range) through Naryn, western Kashgaria and the Tashkurgan Range to the Khalastan but more probably farther west through the Sarykol Range to Hunza where the white-breasted form (*tianschanicus*) has been found near Misgar in October (Ludlow & Kinnear 1933). Yellow-breasted tits (*flavipectus*) occur in the Pamirs eastward to about 73°E (Ivanov 1969).

Thus, one might infer that the Chitral birds belong to *flavipectus* rather than to *tianschanicus*. Stuart Baker (1922), Hellmayr (1929), Hartert & Steinbacher (1933), however, followed Fulton in considering them to be the latter form. This is doubted by Vaurie (1957, 1959) on the basis of Snow's notes who had compared three of the Chitral tits in the British Museum and found they were "far too much yellow" to be typical *tianschanicus*. Contrary to this statement, Snow later (1967, in the Check-List) includes Chitral in the range of *tianschanicus**. Vaurie (1957) concedes that hybrids may occur but thinks it "probable that the population of Chitral is *flavipectus*"—if there is one at all.

Mr. Humayun Abdulali sent me one of the two Chitral birds in the collection of the Bombay Natural History Society for examination. Through the courtesy of the authorities of the British Museum (by sending three of Fulton's skins), the Zoological Museum of the Moscow University, the Zoological Institutes in Leningrad and Halle I was able to compare four specimens from Chitral and a good number of *tianschanicus* and *flavipectus*.

A series of 15 young *flavipectus* (including *carruthersi*; mostly from Ferghana and Tadzhikistan) differs very clearly from 13 young *tianschanicus* (from northern Mongolia, eastern Tian Shan in Chinese Turkestan and southern Kazakhstan) in the tinge of the greyish upper parts: it is distinctly, sometimes even strikingly yellow in *flavipectus*, and pale bluish (fresh skins) or brown, sometimes with a faint pinkish wash (older, foxed skins) in *tianschanicus*. The Chitral birds share the yellow tinge above and below of *flavipectus* and, hence, belong to this

* There, page 117, line 17: for "Altai" read "Alai".

form (if they are closer to *flavipectus* s. str. than to *carruthersi* is discussed below). They differ, however, from either subspecies by being somewhat paler above. The Bombay specimen is less pale and differs in having a brownish rather than greenish tint on the back. This is clearly the effect of foxing; the nuchal band in some young *carruthersi* show some brown, too, and many young *tianschanicus* have a brownish wash above, most distinct in a bird collected in 1876.

The yellow of the under parts is rather pale about as in one juvenile *tianschanicus* from the eastern Tian Shan and paler than in nearly all *flavipectus* and *carruthersi* before me. In just one bird (Brit. Mus. 1904.12.5.14) it is as deep as in average *carruthersi*. This might be one of the birds believed by Fulton to be young (while he thought those with less bright yellow under parts were full-grown individuals). The material is too poor to allow a judgement if the coloration of the Chitral birds is due to individual variation, distinctness of a local (isolated) population or intergradation though the latter is not very probable. The problem has been discussed by Vaurie (1957), and there is no further evidence. It should be stated here that the birds collected by Fulton are clearly not *P. cyanus tianschanicus*.

How the breeding range of the Yellow-breasted Tit is shared among the two subspecies is still unclear. Voyinstvenski (1954), Portenko (1954) and all authors dealing with the birds of Middle Asia ignore the geographic variability within this form. Vaurie (1959) includes the populations of the Alai mountains, the (western) Pamirs and (central) Tadzhikistan in *flavipectus* whereas Stepanyan (1972) says they belong to *carruthersi*, grading into *flavipectus* in "the eastern parts of the Alai Range (specimens from Gulcha)". I did not see any material from these regions. The birds from Chitral are not helpful in this issue since they match *carruthersi* in showing less yellow above and below while they are closer to *flavipectus* in the tail pattern (5 rectrices with white spots).

The taxonomic rank of *flavipectus* (and *berezowskii*) will not be discussed here. Recently, Stepanyan (1972) has reappraised the evidence and considers *flavipectus* to be a distinct species.

2. Description of the young

The juvenile plumage of *carruthersi* has not yet been described. Voyinstvenski (1954) and Portenko (1954) merge this subspecies in *flavipectus* and (like Menzbier 1895) do not even describe the young of the latter, a full description of which evidently has never been published. Hartert (1905) said they are duller on the upper parts than young *tianschanicus* (which he does not describe, to be sure), with a more or less perceptible greenish wash and light sulphur-yellow below. Vaurie (1959) oversimplifies this by saying the young were "deeply

tinged with yellow throughout the entire plumage". This plumage may be described as follows:

Juvenile *flavipectus*.—(Upper parts) fore-head and stripe around crown pale yellow to yellowish white; crown and hind-neck dull grey, the crown often lighter, with a faint bluish tinge; rest of upper parts including upper tail coverts yellowish olive-grey; (sides of head) dark grey line through lores and behind eye, cheeks and ear-coverts like under parts pale to rather bright lemon-yellow; tail, primaries, secondaries, primary-coverts as adult; greater coverts dull grey with broad yellowish-white tips and some bluish on the outer webs; median and lesser coverts slate-grey.

Juvenile *carruthersi*.—Differs from the preceding in being somewhat less vividly tinged yellow on the average (in the specimens examined by me, almost throughout and independent of wear) on the back and less brightly yellow on the under parts, throughout distinctly paler than the breast of the adult. In tail pattern, same difference as in adults.

Hartert & Steinbacher (1933) claim that the juvenile *P. cyanus tianschanicus* "has a yellowish breast and, therefore, apparently has sometimes been taken for *flavipectus*". Vaurie (1959) found *tianschanicus* only "occasionally very faintly tinged with yellow below". Neither is fully correct. Of the 13 juvenile *tianschanicus* before me one shows pale though very distinct yellow colour throughout the under parts, two a slight (ochraceous-) yellowish tinge, one patchy pale yellow over most of the under side, and five a very faint yellowish wash, all these being from northern Mongolia (see Piechocki & Bolod 1972) and Chinese Turkestan; three from Kazakhstan and one from the Mongolian Altai are practically white beneath. Hellmayr (1929) mentions two or three young tits from Chinese Turkestan (Tekes valley) with a "slight suggestion of a pale yellowish prepectoral band" and two similar birds, collected by N. Zarudny in June, 1899, in the adjacent region of Jarkent (now Panfilov).

On the upper parts, young *tianschanicus* are less blue on the back than the adult and much darker grey on the crown. They have a sooty grey nuchal band and grey lesser wing coverts; these parts are ultramarine in the adult.

3. Some remarks about the moult

There are very few data on the moult of the Azure and Yellow-breasted Tits. According to Voyinstvenski (1954), Portenko (1954) and Ivanov (1969) the adults have a complete postnuptial moult July to September; juvenile birds moult at the same time but are said (by Voyinstvenski) to renew only the body plumage. This latter is open to doubt since the four Chitral birds exhibit on growing primary each,

though in one wing only (nos. 5, 5 or 6 as numbered from the carpal joint), all grown to about three quarters. Possibly, the juvenile moult includes the renewal of some distal primaries (see Stresemann 1966, p. 425).

Among the young Yellow-breasted Tits I found some in body moult. Apparently, the flank feathers are the first to be replaced (in one bird as early as June 14, while one from July 22 shows no sign of moult). This is followed by the cheeks and the lower back and rump. About at the same time, the ultramarine lesser wing coverts appear (4 specimens obtained between July 29 and August 7). A bird collected August 18 near Lake Iskander-kul shows that the feathers of the pectoral band are moulted prior to those of belly and lower breast centre. In this bird the greater (secondary) coverts are growing while the back centre is still greenish grey.

UNIVERSITY OF BERLIN,
BERLIN,
September 24, 1973.

G. MAUERSBERGER

REFERENCES

- BAKER, E. C. STUART (1922): Fauna of British India, Birds 1:81. London.
- FULTON, H. T. (1904): Notes on the Birds of Chitral. *J. Bombay nat. Hist. Soc.* 16:44-64.
- HARTERT, E. (1905): Die Vögel der paläarktischen Fauna 1:354. Berlin.
- & STEINBACHER, F. (1933): ditto, Ergänzungsband: 183. Berlin.
- HELLMAYR, C. E. (1929): Birds of the James Simpson—Roosevelts Asiatic Expedition. *Field Mus. Nat. Hist. Publ.* 263, Zool. Ser. 17/3: (86-87).
- IVANOV, A. I. (1969): The Birds of the Pamiro-Alai. Leningrad. (In Russian).
- LUDLOW, F. & KINNEAR, N. B. (1933): A Contribution to the Ornithology of Chinese Turkestan. pt. II. *Ibis* (13) 3:440-473.
- MENZBIER, M. A. (1895): The Birds of Russia. Vol. 2. Moscow. (In Russian).
- PIECHOCKI, R. & BOLOD, A. (1972): Beiträge zur Avifauna der Mongolei, Teil II. Passeriformes. *Mitt. Zool. Mus. Berlin* 48:41-175.
- PORTENKO, L. A. (1954): The Birds of the USSR. Vol. 3. Moscow and Leningrad.
- SNOW, D. W. (1967): Family Paridae in R. A. Paynter (ed.): Check-List of Birds of the World. Vol. XII. Cambridge.
- STEPANYAN, L. S. (1972): On the Systematic Position of the Yellow-breasted Tit [*Parus flavipectus* Severtzov (Paridae, Aves)]. *Nauchn. dokl. biol. nauki* 2:11-16. (In Russian).
- STRESEMANN, E. & V. (1966): Die Mauser der Vögel. *J. Orn.* 107: Suppl.
- VAURIE, C. (1957): Systematic Notes on Palearctic Birds. No. 26. Paridae: the *Parus caeruleus* Complex. *Amer. Mus. Novit.* 1833.
- (1959): The birds of the Palearctic Fauna. Order Passeriformes. London.
- VOYINSTVENSKI, M. A. (1954): [Family Paridae in] G. P. Demytyev & N. A. Gladkov (ed.): The Birds of the Soviet Union. Vol. 5. Moscow (In Russian).